

Pragmatism and Climate Policy

EES 3310/5310

Global Climate Change

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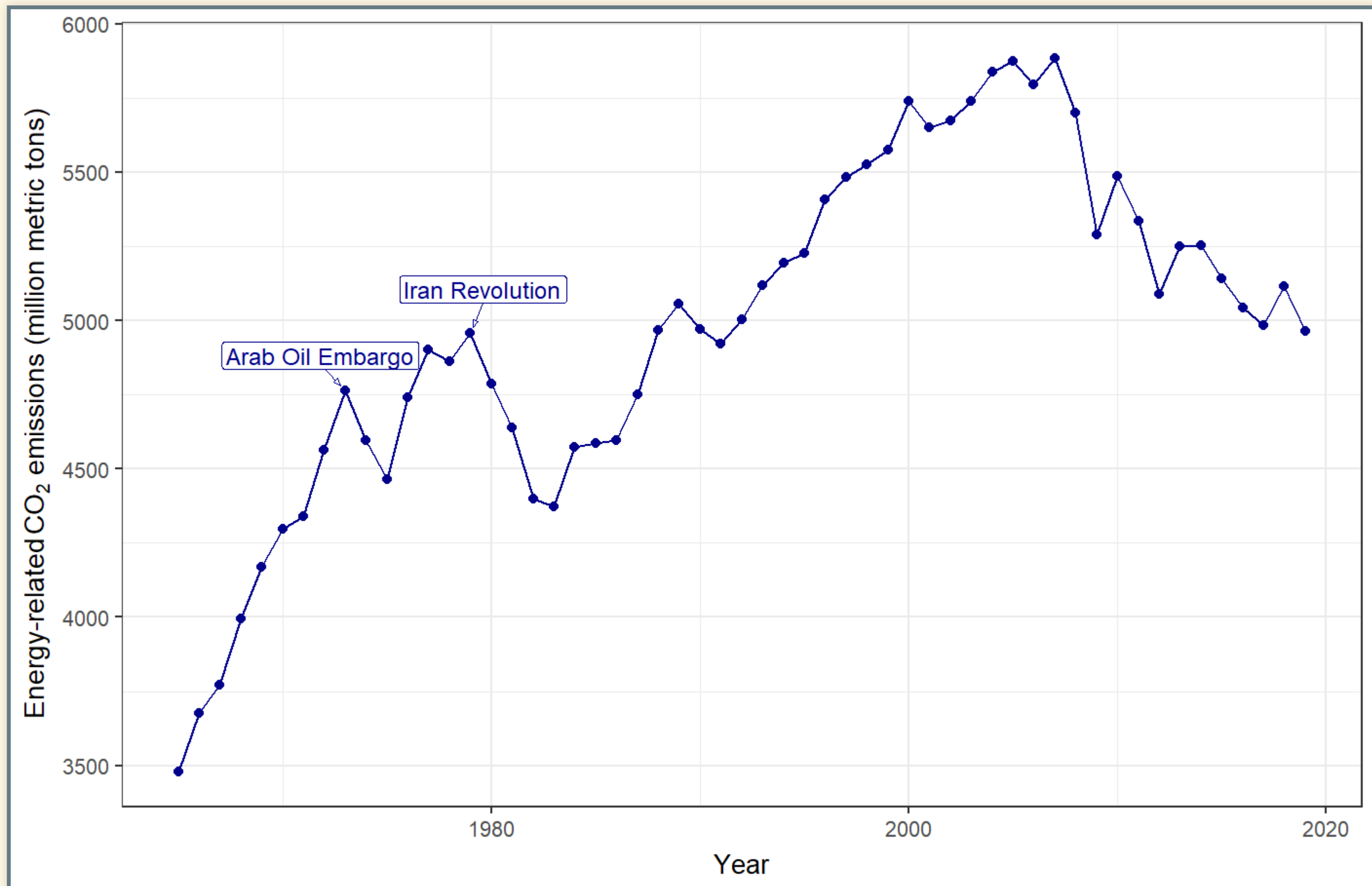
Class #38: Wednesday April 21 2021

Challenges of Decarbonization

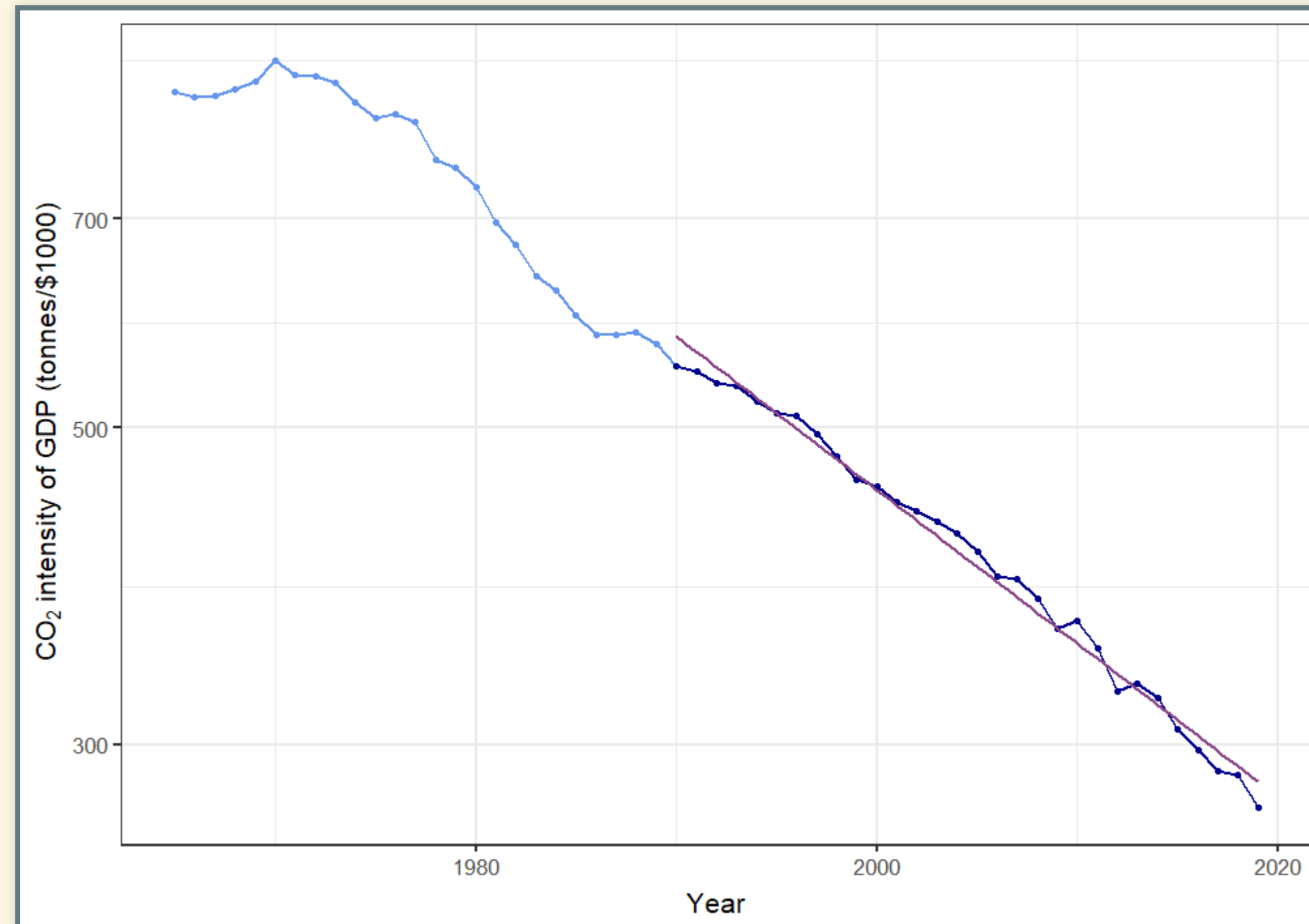
Challenges of Decarbonization

- How hard will it be to reduce CO₂ emissions?
 - Nordhaus:
 - What technology can replace fossil fuels?
 - What policies can stimulate innovation, investment, production, purchase of clean technology?
 - Pielke:
 - The biggest challenge is cost: $RE < C$
 - Make clean technology cheaper than fossil fuels and the problem is solved.

Perspective: US CO₂ Emissions

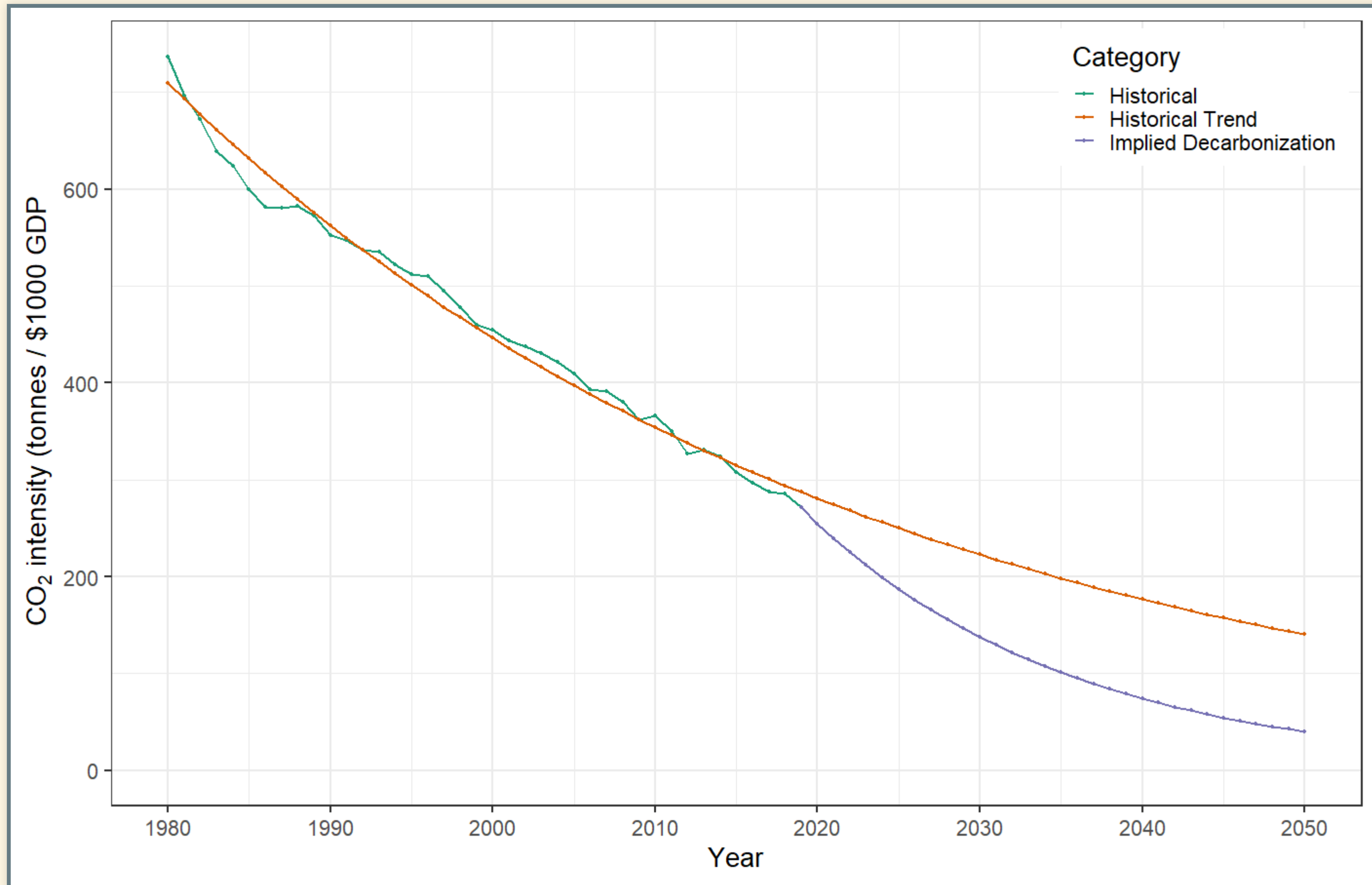


Rate of Decarbonization

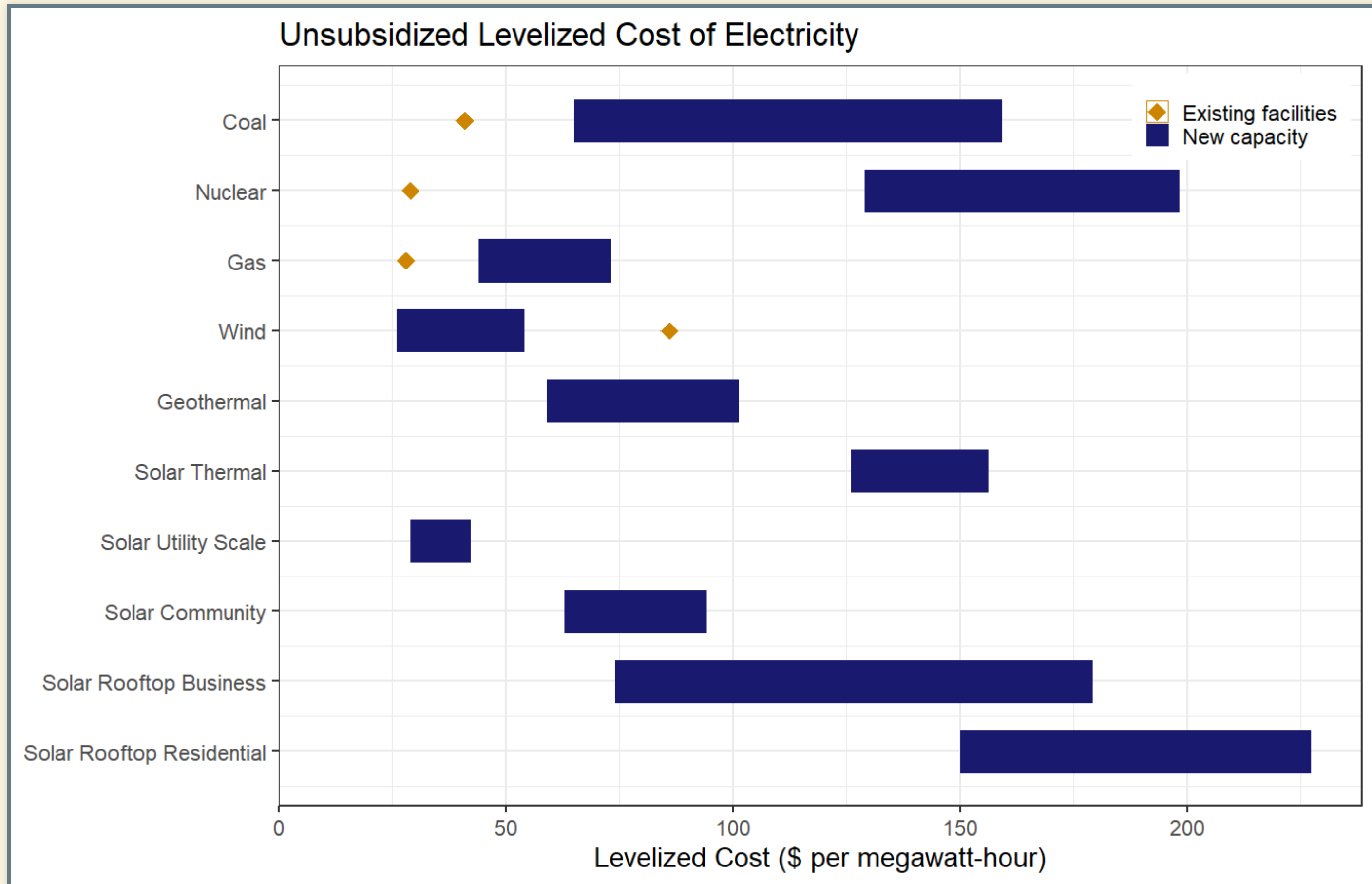


- 2009 policy goal: US emissions 83% less than 2005 by 2050
- *ef* must drop by 6.2% per year
- Actual rate has been about 2.3% per > year

Implied Decarbonization



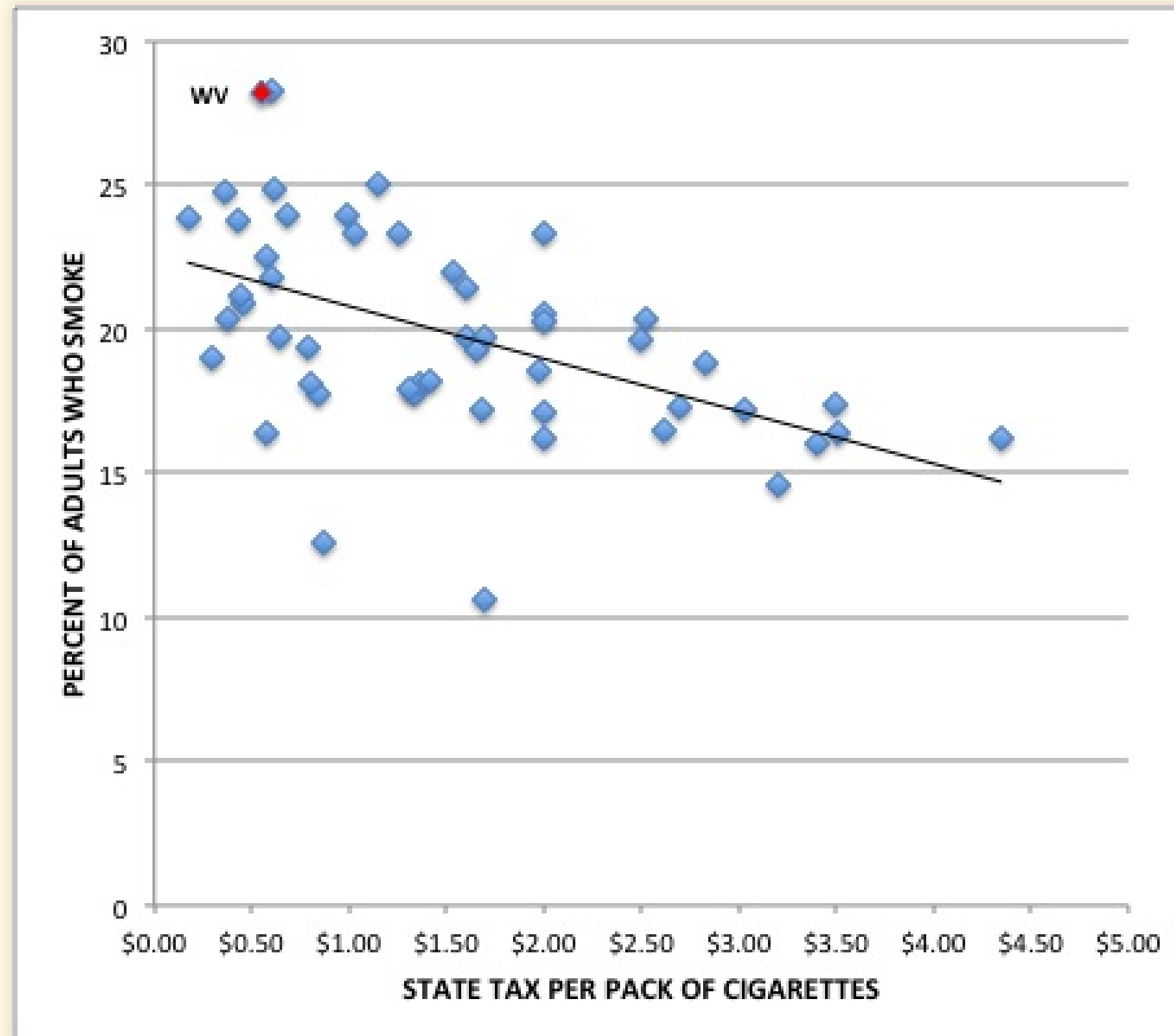
Cost of Decarbonization



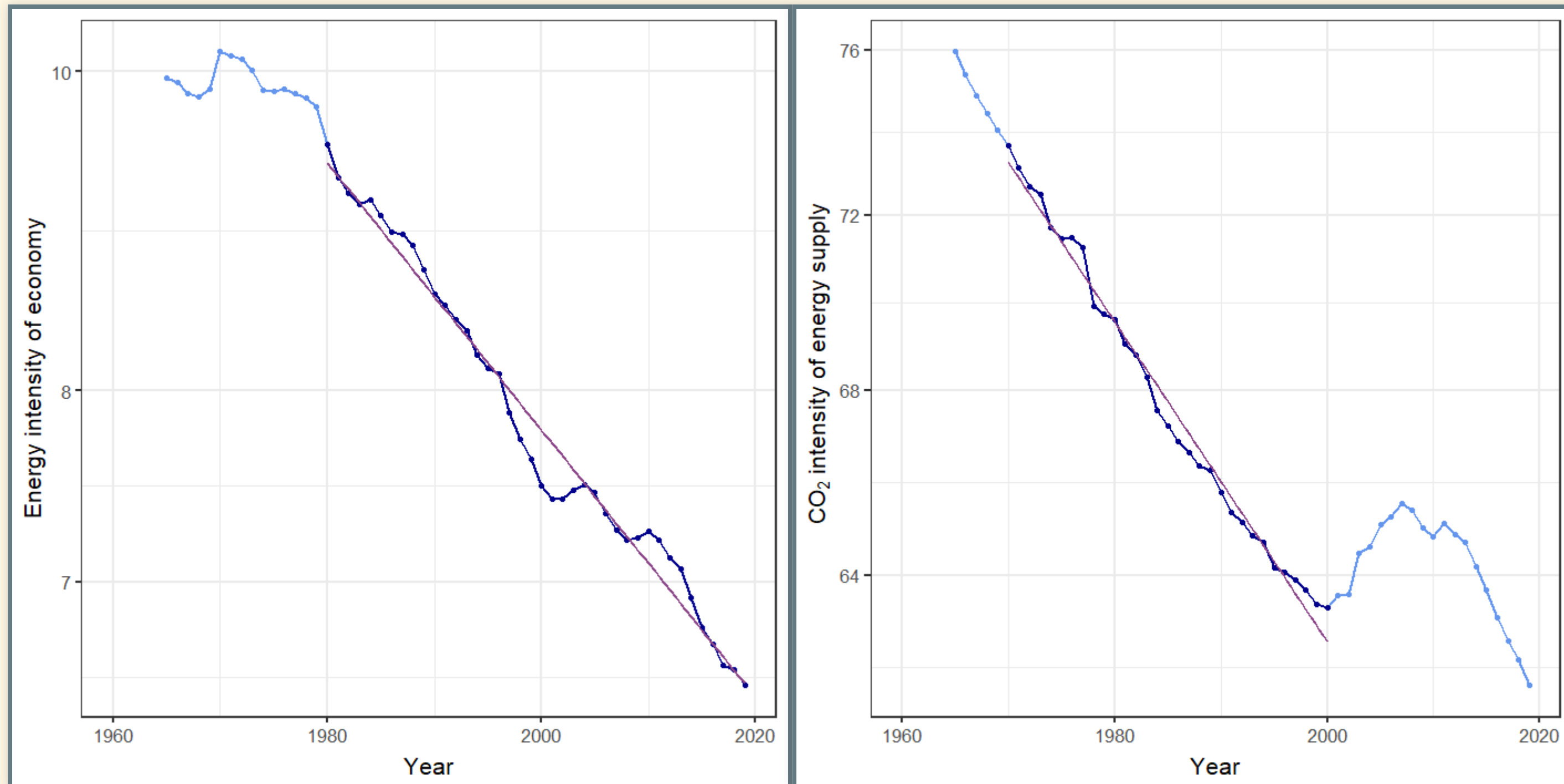
Pielke's Views

Tax on death?

- What do you think of Pielke's argument?



Challenge of decarbonizing



- Trend in e (1980–present): -0.9% per year.
- Trend in f (1970–2000): -0.5% per year.
 - Trend reversed in 2000, but rapid decrease since around 2008.
- So far: Decarbonization driven much more by efficiency than clean energy.
- Rebound: greater efficiency → more consumption.

Energy Poverty

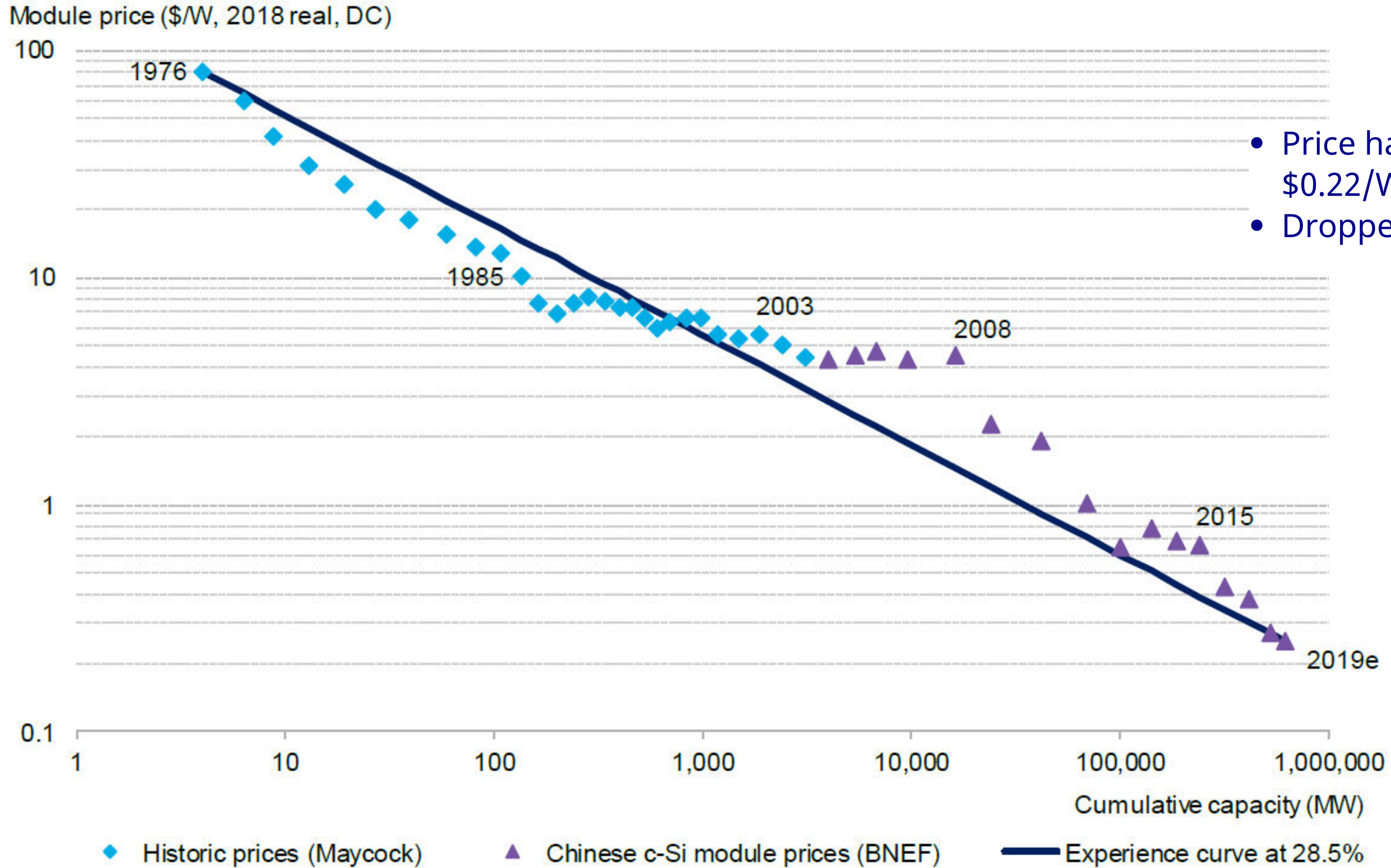


Photo credit: Rebecca Blackwell, Associated Press

- 1.1 billion people (17% of planet) lack access to electricity
- Over 3 billion (38%) lack clean cooking facilities
- In many nations in Africa and Asia 80–95% of the population is energy-poor.

Nordhaus's Perspective

Innovation



Source: Paul Maycock, BloombergNEF

- Price has dropped from \$80/
\$0.22/Watt in 2019.
- Dropped 99.7% (a factor of 3

Innovation Policy

- Knowing price of CO₂ will rise provides incentive to invest in R&D
- Valley of Death:
 - Technology looks promising in laboratory
 - Potential for big profits
 - Many years, lots of money to turn laboratory device into product
 - Product development might fail
 - Product might not sell
 - Competitors might copy product
 - Valley of death
 - Double externality
 1. Inventors don't get all the value of their inventions
 2. Polluters don't pay the costs of pollution
 - Government support to cross valley of death

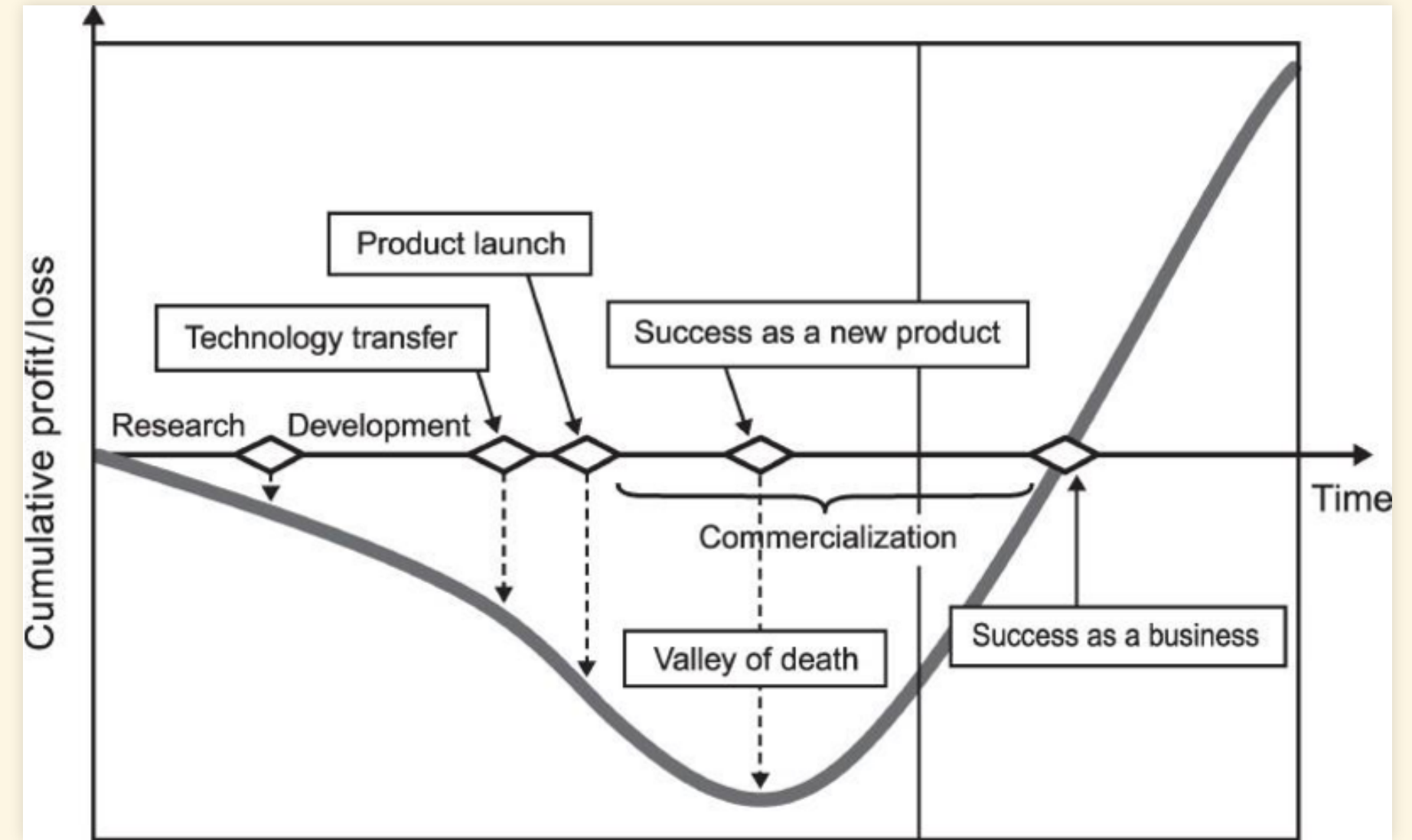


Image: Osawa & Miyazaki, Asian Journal of Technology Innovation 14, 93 (2006) doi: 10.1080/19761597.2006.9668620

Pielke's Policy Proposal

Pielke's Policy Proposal:

- Competition within government
- Public-works model
- Demonstration projects
- Government as consumer of energy innovations
 - Federal government is the largest consumer of energy in the U.S.
 - 350,000 buildings
 - 600,000 vehicles
- \$5/ton carbon tax (\$0.04 per gallon gas)
 - invest in clean-energy R&D
- Monitor progress
- Develop “plan B” (geoengineering)

Obliquity

- Appeal to people who don't care about climate change
 - Cheaper energy
 - Reduce pollution (smog, etc.)
 - Reduce dependence on foreign oil